

CLAIMS

1. A promoter of growth, differentiation of hematopoietic stem cells, hematopoietic progenitors, or a combination thereof, which contains Cofilin as an active ingredient.

2. The promoter of claim 1, wherein the Cofilin has the amino acid sequence depicted by SEQ ID NO:1 or the amino acid sequence of Cofilin depicted by SEQ ID NO:1 except that it has one or more amino acid deletions, substitutions, additions, or a combination thereof, said Cofilin having the activity of promoting growth, differentiation of hematopoietic stem cells, hematopoietic progenitors, or a combination thereof.

3. The promoter of claim 1, wherein the Cofilin has the amino acid sequence depicted by SEQ ID NO:1 or an amino acid sequence encoded by a base sequence hybridizable under stringent conditions with a base sequence complementary to the base sequence coding for the amino acid sequence of Cofilin depicted by SEQ ID NO:1, said Cofilin having the activity of promoting growth, differentiation of hematopoietic stem cells, hematopoietic progenitors, or a combination thereof.

4. The promoter of claim 1, wherein the Cofilin has the amino acid sequence depicted by SEQ ID NO:1 or an amino acid sequence having at least 30% amino acid sequence homology with the amino acid sequence of Cofilin (SEQ ID NO:1), said Cofilin having the activity of promoting growth, differentiation of hematopoietic stem cells, hematopoietic progenitors, or a combination thereof.

5. The promoter of claim 1, wherein the Cofilin is encoded by the base sequence depicted by SEQ ID NO:2 or a base sequence hybridizable under stringent conditions with a base sequence complementary to the base sequence coding for the base sequence of Cofilin depicted by SEQ ID NO:2, said Cofilin having the activity of promoting growth, differentiation of hematopoietic stem cells, hematopoietic progenitors, or a combination thereof.

6. The promoter of claim 1, wherein the Cofilin is encoded by the base sequence depicted by SEQ ID NO:2 or DNA comprising a base sequence having at least 30% base sequence homology with the base sequence of Cofilin depicted by SEQ ID NO:2, said Cofilin having the activity of promoting growth, differentiation of hematopoietic stem cells, hematopoietic progenitors, or a combination thereof.

7. The promoter of claim 1, wherein the Cofilin is produced by a gene recombinant technique.

8. The promoter of claim 1, wherein the Cofilin has a sugar chain.

9. The promoter of claim 1, which further contains another cytokine.

10. The promoter of claim 9, wherein said another cytokine comprises interleukin (IL)-1, IL-2, IL-3, IL-4, IL-5, IL-6, IL-7, IL-10 and IL-11, granulocyte colony stimulating factor (G-CSF), granulocyte/macrophage colony stimulating factor (GM-CSF), macrophage colony stimulating factor (M-CSF), erythropoietin (EPO), basic fibroblast growth factor (bFGF), acidic fibroblast growth factor (aFGF), insulin-like growth factor (IGF), epidermal growth factor (EGF), hepatocyte growth factor (HGF), transforming growth factor- α (TGF- α), protease nexin I, protease nexin II, platelet derived growth factor (PDGF), cholinergic differentiation factor (CDF), leukocyte migration inhibitory factor (LIF), stem cell factor (SCF), flk-2/flt-3 ligand (FL), thrombopoietin (TPO), IL-6/soluble IL-6 receptor complex, Hyper IL-6 (fusion protein from IL-6 and soluble IL-6 receptor), or a combination thereof.

11. The promoter of claim 9, wherein said another cytokine is IL-3.

12. The promoter of claim 9, wherein said another cytokine comprises stem cell factor (SCF), flk-2/flt-3 ligand (FL), or a combination thereof.

13. The promoter of claim 1, wherein said promoter is for treating diseases that result from insufficient growth, differentiation of hematopoietic stem cells, hematopoietic progenitors, or a combination thereof.

14. The promoter of claim 1, wherein said promoter is for treating panhematopenia, diseases that are accompanied by hematopoietic hypofunction, or a combination thereof.

15. The promoter of claim 1, wherein said promoter can be used in regenerative medicine.

16. A method of promoting growth, differentiation of hematopoietic stem cells, hematopoietic progenitors, or a combination thereof, said method comprising administering at least one promoter of growth, differentiation of hematopoietic stem cells, hematopoietic progenitors, or a combination thereof, wherein said at least one promoter contains Cofilin as an active ingredient.

17. A method of treating a disease that results from insufficient growth, differentiation of hematopoietic stem cells, hematopoietic progenitors, or a combination thereof, said method comprising administering at least one promoter of growth, differentiation of hematopoietic stem cells, hematopoietic progenitors, wherein said at least one promoter contains Cofilin as an active ingredient.

18. The method of claim 17, wherein said disease comprises panhematopenia, a disease that is accompanied by hematopoietic hypofunction, or a combination thereof.

19. A method of expanding hematopoietic stem cells *ex vivo* by using at least one promoter of growth, differentiation of hematopoietic stem cells, hematopoietic progenitors, or a combination thereof, wherein said at least one promoter contains Cofilin as an active ingredient.

20. A method of regenerative medicine which involves expanding hematopoietic stem cells *ex vivo* by using at least one promoter of growth, differentiation of hematopoietic stem

cells, hematopoietic progenitors, or a combination thereof, wherein said at least one promoter contains Cofilin as an active ingredient.